



White-Nose Syndrome in Bats

White-Nose Syndrome Interagency Communications and Outreach Working Group

What is white-nose syndrome (WNS)?

White-nose syndrome (WNS) is a **disease of hibernating bats** caused by a recently discovered fungus called *Pseudogymnoascus destructans* (*Pd*). WNS affects bats during the winter; growth of the fungus on the skin disturbs hibernation, resulting in dehydration, starvation, and often death.

BAT WITH *Pd* GROWTH

Bats affected by WNS may develop a white, fuzzy fungal growth on the face or wings.

A. Hicks, NY DEC

Why are bats important?

Bats are unique animals and are the only mammals capable of flight. Bats eat insects that damage crops and carry diseases; they save farmers in the U.S. alone **over \$3 billion annually in pest control services**. Many bat species are also important dispersers of plant pollen or seeds.

WNS has **killed more than six million bats** since it was detected. This disease could possibly lead to the extinction of some bat species and loss of their valuable contributions to nature.

Which bat species are affected?

Seven North American bat species (shown below) are confirmed to have WNS, including **one threatened (*)** and **two endangered (**)** species.

The causative fungus, *Pd*, has been detected without associated signs of illness on five more species.

BIG BROWN



Organization for Bat Conservation

LITTLE BROWN



Ann Froeschauer/USFWS

TRI-COLORED



NPS

E. SMALL-FOOTED



AI Hicks/NYDEC

N. LONG-EARED *



Ann Froeschauer/USFWS

GRAY **



Merlin Tuttle

INDIANA **



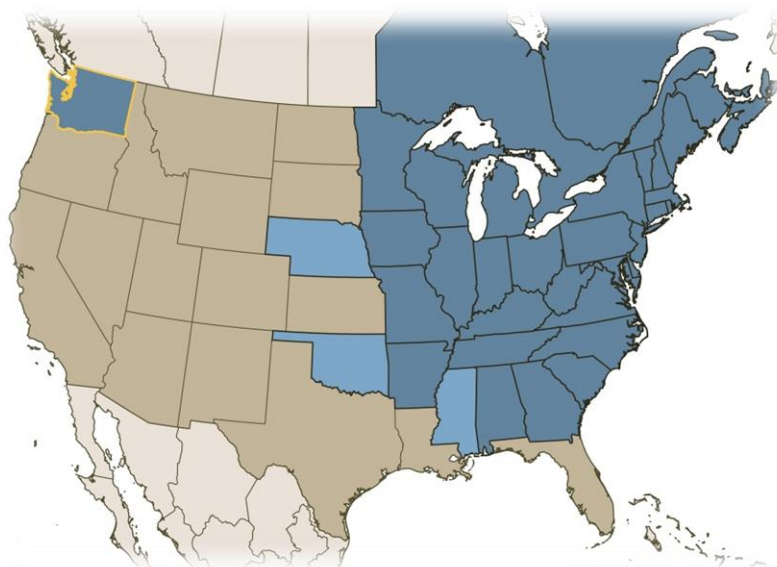
Caroline Byrne

Where has WNS been found?

Bats affected by WNS have been detected in 29 U.S. states and five Canadian provinces.

The fungus that causes WNS (*Pd*) has also been found in caves or on bats in three more states without seeing ill bats.

Recently, WNS was detected in a little brown bat from Washington state (highlighted in yellow). The case in Washington was detected 1,300 miles from previously documented locations in the U.S. To date, it is unknown if other bat species or hibernation sites in Washington are affected.



WNS distribution, May 2016

WNS detected Pd detected

We have learned that *Pd* is present in other parts of the world, including countries in Europe and China, but population-level effects of WNS appear to be less severe in these locations.

VIRGINIA BIG-EARED BAT



Craig Stihler, WVDNR

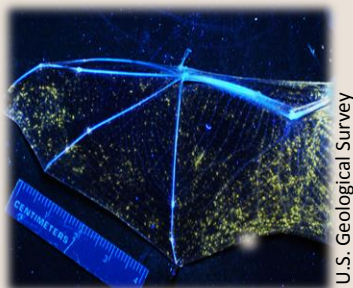
The fungus that causes WNS has also been detected on endangered Virginia big-eared bats, but signs of WNS have not been seen in this species.

What have we learned about WNS?

The first evidence of WNS in North America comes from a photograph taken in New York state by a recreational caver during 2006 and from sick bats seen in caves during 2007.

In less than a decade, **we have made substantial progress** towards understanding WNS. We have identified and classified the agent that causes this condition, developed molecular tools for diagnosing WNS, learned how this disease infects and kills bats, and developed a collaborative surveillance network to detect and monitor disease spread. **Work is on-going to better understand and prevent WNS.**

BAT WING WITH WNS
UNDER UV LIGHT



The fungus growing in bat skin glows under ultraviolet light.

U.S. Geological Survey

Can we control WNS in bats?

Current research efforts are focused on developing strategies to reduce losses to bat populations and limit WNS spread.

Effectively managing WNS will be difficult, but we will continue working together to fight this disease.

The fungus that causes WNS is difficult to eliminate from the environment, so **we do not expect to find a single treatment for this disease**. However, a combination of management actions may protect bats from infection and help their populations recover. **There is still reason to be hopeful!** Some WNS management approaches that are being investigated include:

- Applying bacteria or fungi to inhibit *Pd* growth on bats or in cave environments;
- Developing vaccines to help bats' immune systems recognize and fight *Pd*;
- Using anti-fungal chemicals to treat affected bats or reduce cave contamination;
- Modifying hibernation environments to inhibit *Pd* growth.

Where do I go for more information?

- WNS Working Group – www.whitenosesyndrome.org
- Bat Conservation International – www.batcon.org
- Organization for Bat Conservation – www.batconservation.org
- Project EduBat – batslive.pwnet.org/edubat
- USGS National Wildlife Health Center – www.nwhc.usgs.gov
- National Park Service - <http://www.nature.nps.gov/biology/WNS/>

BAT BOXES SUPPORT BAT POPULATIONS



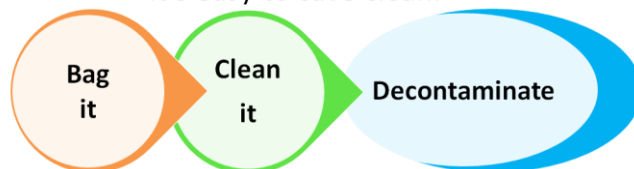
Mark & Selena Kiser/Bat Conservation International

- **Learn about WNS**
- **Teach others**
- **Talk to your legislators**
- **Adopt bat-friendly practices**

What can I do to help?

Humans cannot get WNS, but people entering caves or mines can spread the fungus to healthy bat populations. To prevent this from happening, **stay out of sites where bats are hibernating and decontaminate caving gear and clothes after visiting sites where bats hibernate.**

It's easy to cave clean.



You can also help by learning more about WNS and teaching others. In particular, you can contact your state or federal legislators to request their support for funding critical research.

Finally, manage your own property in a bat-friendly way. Contact your local wildlife agency to learn bat-friendly practices that help bat populations thrive.

Remember: bats, like all wildlife, can also have diseases that affect people. For your safety, please do not touch bats. **If you do come into contact with a bat, notify your local public health department.**

Caution!

White-nose syndrome does not affect humans but **bats can also have other diseases, such as rabies.**

- Rabies is a neurologic disease caused by a virus.
- A small percentage of bats have rabies.
- Rabies is transmitted by a bite or contamination of a wound or mucus membrane with saliva from an infected animal.
- Rabies is nearly always fatal in humans but rabies can be prevented by vaccination after exposure.
- Avoid direct contact with bats.
- **If you have direct contact with a bat, seek help from your doctor or local public health department.**

